

UNCLASSIFIED

| BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit) | | | | | | | | DATE February 1999 | | |
|--|-------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|------------------------------|------------------------|------------|
| BUDGET ACTIVITY 4 - Demonstration and Validation | | | | PE NUMBER AND TITLE 0603870C Boost Phase Intercept - D/V | | | | | PROJECT 1294 | |
| COST (In Thousands) | FY 1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | Cost to Complete | Total Cost |
| 1294 UAV Boost Phase Interceptor | 13994 | 6426 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <p>A. <u>Mission Description and Budget Item Justification</u></p> <p>The Unmanned Aerial Vehicle (UAV)- Boost Phase Intercept (BPI) project covers two tasks; Task 1 Israeli Boost Phase Intercept System (IBIS) Risk Mitigation, and Task 2 : cooperative UAV-Based BPI Concepts. Task 1 is a cooperative U.S./Government of Israel (GOI) BPI program which involves development and refinement (risk mitigation) of the UAV based BPI concept which destroys tactical ballistic missiles in the boost phase of flight, before engine cutoff, preferably while in enemy territory. This project is based on the use of UAVs armed with onboard interceptors to provide the means of destroying enemy missiles in their boosting phase of flight. Task 1 efforts are performed in Israel and focus on key elements of the Israeli Boost Phase Intercept System (IBIS) concept. Task 2 of this cooperative effort is performed in the U.S. and will support and expand key elements of the IBIS concept. It includes developing the UAV-based BPI system requirements for scenarios of operation and employment in support of U.S. expeditionary forces. The requirements will address development of search and track sensors, Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I) and a Concept of Operations (CONOPS) based on readily available U.S. technologies. Task 2 will leverage Service capabilities by addressing issues outlined in the Technical Operations (TO) Technology Master Plan (TMP).</p> <p>Along with attack operations, the BPI concept is a means of destroying hostile ballistic missiles over enemy territory. UAVs armed with interceptors show significant near term promise. Previous cooperative investigations of the UAV-based BPI concept and the recent Air Force Airborne Laser (ABL) analysis of Alternatives (AoA) study (May 97) concluded that such a BPI system could be very cost effective and complementary to terminal missile defense systems.</p> <p>This program is a “hedge” risk mitigation effort for the ABL program and can provide complementary support to ABL. The program uses cooperative activities in the U.S. and Israel to mitigate risk of developing UAV-based BPI systems. The GOI is lead on risk mitigation of the platform (HA 10) and interceptor while the U.S. is lead on the Infrared Search and Track (IRST) activities. The Battle Management and Control (BMC) and system engineering and integration responsibilities are shared. The U.S. and GOI will share costs on a 75/25% ratio for Task 1.</p> <p>Task 2 is being accomplished by BMDO/Service Integrated Product Teams (IPT) with additional support provided by Industry.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 3950 Initiated Infrared Search and Track (IRST) contract (April 98) • 7663 Refined IBIS interceptor design; completed Interim Progress Review (IPR) 3 of Israeli Risk Mitigation Contract • 2381 Provided UAV BPI inputs to the Technology Master (Roadmap) Plan. Performed “Quick Look” Survivability analysis of the IBIS HA 10, and IBIS Systems Engineering. <p>Total 13994</p> | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> Project 1294 Page 1 of 5 Pages Exhibit R-2 (PE 0603870C) </div> | | | | | | | | | | |

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|---|---|------------------------------|--|----------------|----------------|----------------|----------------|--|--------------------|----------------------|----------------|--------------------|---------------------------|--|------|--|--|--------------------|--|------|--|--|-----------------------------------|-----|--|--|--|---|--|-----|--|--|-------------------|--|-----|--|--|---------------------------|--|--|--|--|--|--|--|--|--|---|-------|------|---|---|
| BUDGET ACTIVITY 4 - Demonstration and Validation | PE NUMBER AND TITLE 0603870C Boost Phase Intercept - D/V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT 1294 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 1999 Planned Program: <ul style="list-style-type: none"> • 3700 The Israel Risk Mitigation effort will emphasize HA-10 integration; MOAB II analysis; further development of IRST algorithms; and evaluation of attacking the launcher within the mission parameters. • 2426 Concentrate on engine modification for the FJ44-2E engine; leverage service technology develop areas of value to mission area; complete evaluation of Israeli concepts; analyze system survivability and analyze attack of launcher concepts for Israeli system. • 300 Complete development and start flight testing of the IRST/ELRF system. <p>Total 6426</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 2000 Planned Program: <ul style="list-style-type: none"> • <p>Total 0</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 2001 Planned Program: <ul style="list-style-type: none"> • <p>Total 0</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;"><u>B. Program Change Summary</u></th> <th style="text-align: center; padding: 5px;"><u>FY 1998</u></th> <th style="text-align: center; padding: 5px;"><u>FY 1999</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2000</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2001</u></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Previous President's Budget (FY 1999 PB)</td> <td style="text-align: center; padding: 5px;">15766</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> </tr> <tr> <td style="padding: 5px;">Congressional Adjustments</td> <td style="padding: 5px;"></td> <td style="text-align: center; padding: 5px;">6500</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Appropriated Value</td> <td style="padding: 5px;"></td> <td style="text-align: center; padding: 5px;">6500</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Adjustments to Appropriated Value</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">a. Congressional Reductions (FFRDC, Inflation, etc)</td> <td style="padding: 5px;"></td> <td style="text-align: center; padding: 5px;">-35</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">b. OSD Reductions</td> <td style="padding: 5px;"></td> <td style="text-align: center; padding: 5px;">-39</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">c. Emergency Supplemental</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Adjustments to Budget Years Since FY 1999 PB</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Current Budget Submit (FY 2000 / 2001 PB)</td> <td style="text-align: center; padding: 5px;">13994</td> <td style="text-align: center; padding: 5px;">6426</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> </tr> </tbody> </table> | | | <u>B. Program Change Summary</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | Previous President's Budget (FY 1999 PB) | 15766 | 0 | 0 | 0 | Congressional Adjustments | | 6500 | | | Appropriated Value | | 6500 | | | Adjustments to Appropriated Value | | | | | a. Congressional Reductions (FFRDC, Inflation, etc) | | -35 | | | b. OSD Reductions | | -39 | | | c. Emergency Supplemental | | | | | Adjustments to Budget Years Since FY 1999 PB | | | | | Current Budget Submit (FY 2000 / 2001 PB) | 13994 | 6426 | 0 | 0 |
| <u>B. Program Change Summary</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Previous President's Budget (FY 1999 PB) | 15766 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Congressional Adjustments | | 6500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appropriated Value | | 6500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adjustments to Appropriated Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| a. Congressional Reductions (FFRDC, Inflation, etc) | | -35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| b. OSD Reductions | | -39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c. Emergency Supplemental | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adjustments to Budget Years Since FY 1999 PB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Current Budget Submit (FY 2000 / 2001 PB) | 13994 | 6426 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Change Summary Explanation: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;"><u>C. Other Program Funding Summary</u></th> <th style="text-align: center; padding: 5px;"><u>FY 1998</u></th> <th style="text-align: center; padding: 5px;"><u>FY 1999</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2000</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2001</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2002</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2003</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2004</u></th> <th style="text-align: center; padding: 5px;"><u>FY 2005</u></th> <th style="text-align: center; padding: 5px;">To <u>Compl</u></th> <th style="text-align: center; padding: 5px;">Total <u>Cost</u></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">930</td> </tr> </tbody> </table> | | | <u>C. Other Program Funding Summary</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | To <u>Compl</u> | Total <u>Cost</u> | | | | | | | | | | 0 | 930 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>C. Other Program Funding Summary</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | To <u>Compl</u> | Total <u>Cost</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 0 | 930 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> Project 1294 Page 2 of 5 Pages Exhibit R-2 (PE 0603870C) </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| <p>D. <u>Acquisition Strategy:</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">E. <u>Schedule Profile</u></td> <td style="width: 5%;"><u>FY 1996</u></td> <td style="width: 5%;"><u>FY 1997</u></td> <td style="width: 5%;"><u>FY 1998</u></td> <td style="width: 5%;"><u>FY 1999</u></td> <td style="width: 5%;"><u>FY 2000</u></td> <td style="width: 5%;"><u>FY 2001</u></td> <td style="width: 5%;"><u>FY 2002</u></td> <td style="width: 5%;"><u>FY 2003</u></td> <td style="width: 5%;"><u>FY 2004</u></td> <td style="width: 5%;"><u>FY 2005</u></td> </tr> <tr> <td>IBIS risk Mitigation Contract (HQ 0006-97-C0010)</td> <td></td> <td>4Q</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>IRST contract (Raytheon)</td> <td></td> <td></td> <td>3Q</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | | | | | | | | | E. <u>Schedule Profile</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | IBIS risk Mitigation Contract (HQ 0006-97-C0010) | | 4Q | | | | | | | | | IRST contract (Raytheon) | | | 3Q | | | | | | | |
| E. <u>Schedule Profile</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IBIS risk Mitigation Contract (HQ 0006-97-C0010) | | 4Q | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IRST contract (Raytheon) | | | 3Q | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Project 1294 | | | Page 3 of 5 Pages | | | Exhibit R-2 (PE 0603870C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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BMDO RDT&E COST ANALYSIS (R-3)

DATE

February 1999

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603870C Boost Phase Intercept - D/V

PROJECT

1294

| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|-------------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. Israeli MOD | FFP | Israel | 25703 | 3700 | | | | | | TBD | 29403 | |
| b. ONR/NAWC-CL | MIPR | Texas,CA, Michigan | 7510 | 300 | | | | | | TBD | 7810 | |
| c. Misc Services | MIPR | Various | | 1226 | | | | | | TBD | 1226 | |
| d. | | | | | | | | | | | | |
| e. | | | | | | | | | | | | |
| Subtotal Product Development: | | | 33213 | 5226 | | | | | | | 38439 | |

Remark:

| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|-------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. ANSER | CPFF | Washington D.C. | 1456 | 1200 | | | | | | TBD | 2656 | |
| b. | | | | | | | | | | | | |
| c. | | | | | | | | | | | | |
| Subtotal Support Costs: | | | 1456 | 1200 | | | | | | | 2656 | |

Remark:

| III. Test and Evaluation | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|-------------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. Test Resources | MIPR | USAF/WL/M | 80 | 0 | | | | | | TBD | 80 | |
| b. | | | | | | | | | | | | |
| c. | | | | | | | | | | | | |
| Subtotal Test and Evaluation: | | | 80 | | | | | | | | 80 | |

Remark:

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| BMDO RDT&E COST ANALYSIS (R-3) | | | | | | | | | | DATE February 1999 | | |
|--|------------------------|--------------------------------|----------------|--------------|--|--------------|--------------------|--------------|--------------------|------------------------------|------------|--------------------------|
| BUDGET ACTIVITY 4 - Demonstration and Validation | | | | | PE NUMBER AND TITLE 0603870C Boost Phase Intercept - D/V | | | | | PROJECT 1294 | | |
| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. N/A | | | | | | | | | | | | |
| b. | | | | | | | | | | | | |
| c. | | | | | | | | | | | | |
| Subtotal Management Services: | | | | | | | | | | | | |
| Remarks: | | | | | | | | | | | | |
| Project Total Cost: | | | 34749 | 6426 | | | | | | | 41175 | |
| Remark: | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Project 1294
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Exhibit R-3 (PE 0603870C)

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